

IN THE CLAIMS:

The following listing of claims will replace all prior versions, and listings, of the claims in the application:

1. (Currently amended) A lead frame substrate, comprising:
a plurality of connection bars including at least one permanent connection bar and at least one temporary connection bar;
a semiconductor die pad being adapted to receive a semiconductor die;
a plurality of termination pads being linked together and to said semiconductor die pad by at least one of said plurality of connection bars, each one of said plurality of termination pads being adapted to receive at least one of a passive component and a bonding wire, said at least one permanent connection bar providing an electrical connection between selected ones of said termination pads, said at least one temporary connection bar providing temporary structural integrity of said lead frame substrate; and
a molding compound fixing said semiconductor die pad, said plurality of termination pads, and said plurality of connection bars together, thereby permitting subsequent removal of said at least one temporary connection bar.
2. (Original) The lead frame substrate according to claim 1, wherein said semiconductor die pad, said plurality of termination pads, and said plurality of connection bars comprise a thermally and electrically conductive material.
3. (Original) The lead frame substrate according to claim 2, wherein said thermally and electrically conductive material comprises copper.

4. (Currently amended) The lead frame substrate according to claim 1, wherein said semiconductor die pad, said plurality of termination pads, and said plurality of connection bars include a respective top and bottom surface.

5. (Currently amended) ~~The lead frame substrate according to claim 4, A lead frame substrate, comprising:~~

a plurality of connection bars;
a semiconductor die pad being adapted to receive a semiconductor die;
a plurality of termination pads being linked together and to said semiconductor die pad by said plurality of connection bars, each one of said plurality of termination pads being adapted to receive a passive component and a bonding wire; and

a molding compound fixing said semiconductor die pad, said plurality of termination pads, and said plurality of connection bars together;

wherein said semiconductor die pad, said plurality of termination pads, and said plurality of connection bars include a top and bottom surface, and said molding compound leaves said top and bottom surfaces uncovered.

6. (Original) The lead frame substrate according to claim 1, wherein said semiconductor die pad, said plurality of termination pads, and said plurality of connection bars have a unitary construction from a common piece of material.

7. (Original) The lead frame substrate according to claim 1, further comprising a plurality of leads located around a periphery of the lead frame substrate.

8. (Currently amended) The lead frame substrate according to claim 1, wherein said plurality of at least one permanent connection bars bar electrically couples said semiconductor die pad to at least one of said plurality of termination pads.

9. (Currently amended) The lead frame substrate according to claim 1, wherein said plurality of at least one permanent connection bars bar electrically couples selected ones of said plurality of termination pads together.

10. (Currently amended) The lead frame substrate according to claim 4 5, wherein said plurality of connection bars comprises permanent connection bars and temporary connection bars.

11. (Currently amended) The lead frame substrate according to claim 10, wherein said temporary connection bars are adapted to be removed from the lead frame substrate prior to mounting the lead frame substrate on a lead frame after said molding compound has fixed said semiconductor die pad, said plurality of termination pads, and said plurality of connection bars together.

12. (Original) The lead frame substrate according to claim 1, wherein the lead frame substrate comprises a substantially uniform thickness.

13. (Withdrawn) The lead frame substrate according to claim 1, wherein the lead frame substrate is adapted for being mounted to a circuit board.

14. (Withdrawn) The lead frame substrate according to claim 13, wherein only said semiconductor die pad and said plurality of leads contact the circuit board when the lead frame substrate is mounted on the circuit board.

15. (Withdrawn) A lead frame package, comprising:

a housing having a central portion and a plurality of leads located around a periphery of said housing; and

a lead frame substrate mounted on said central portion, said lead frame substrate being electrically coupled to at least one of said plurality of leads and including:

a plurality of connection bars;

a semiconductor die pad being adapted to receive a semiconductor die;

a plurality of termination pads, each one of said plurality of termination pads being adapted to receive a passive component and a bonding wire, said plurality of termination pads being linked together and to said semiconductor die pad by said plurality of connection bars; and

a molding compound fixing said semiconductor die pad, said plurality of termination pads, and said plurality of connection bars together.

16. (Withdrawn) The lead frame package according to claim 15, wherein said plurality of connection bars, said semiconductor die pad, and said plurality of termination pads have a unitary construction from a common sheet of conductive material.

17. (Withdrawn) The lead frame package according to claim 16, wherein said sheet of material comprises copper.

18. (Withdrawn) The lead frame package according to claim 15, wherein said plurality of connection bars electrically couples said plurality of terminations pads together and said semiconductor die pad to said plurality of termination pads.

19. (Withdrawn) The lead frame package according to claim 15, wherein said plurality of connection bars comprises a combination of permanent connection bars and a plurality of temporary connection bars.

20. (Withdrawn) The lead frame package according to claim 19, wherein said temporary connection bars are removed from said lead frame substrate prior to mounting said lead frame substrate on said central portion.

21. (Withdrawn) The lead frame package according to claim 15, wherein said semiconductor die pad, said plurality of termination pads, and said plurality of connection bars include a top and bottom surface.

22. (Withdrawn) The lead frame package according to claim 21, wherein said molding compound leaves said top and bottom surfaces uncovered.

23. (Withdrawn) The lead frame package according to claim 21, further comprising a packaging material, said packaging material encapsulates said top surface of each one of said plurality of connections bars, of said semiconductor die pad, of each one of said plurality of termination pads, and said molding compound.

24. (Withdrawn) The lead frame package according to claim 15, wherein said lead frame substrate comprises a substantially uniform thickness.

25. (Withdrawn) A lead frame package, comprising:

a housing having a central portion and a plurality of leads located around a periphery of said housing;

a lead frame substrate mounted on said central portion, said lead frame substrate being electrically coupled to at least one of said plurality of leads and including:

a plurality of semiconductor die pads, each one of said plurality of semiconductor dies pads being adapted to receive a semiconductor die;

a plurality of termination pads, each one of said plurality of termination pads being adapted to receive a passive component and a bonding wire,

a plurality of connection bars linking together said plurality of termination pads and said semiconductor die pad; and

a molding compound applied to said lead frame substrate, said molding compound fixing said plurality of semiconductor die pads, said plurality of termination pads, and said plurality of connection bars together.

26. (Withdrawn) The lead frame package according to claim 25, wherein said lead frame substrate comprises a unitary construction from a common sheet of conductive material.

27. (Withdrawn) The lead frame package according to claim 26, wherein said sheet of material comprises copper.

28. (Withdrawn) The lead frame package according to claim 25, wherein said housing comprises a plastic material.

29. (Withdrawn) The lead frame package according to claim 25, wherein each one of said plurality of semiconductor die pads, each one of said plurality of termination pads, and each one of said plurality of connection bars includes a top and bottom surface.

30. (Withdrawn) The lead frame package according to claim 29, wherein said molding compound leaves said top and bottom surfaces uncovered.

31. (Withdrawn) The lead frame package according to claim 25, wherein said plurality of connection bars comprises a plurality of temporary connection bars and a plurality of permanent connection bars.

32. (Withdrawn) The lead frame package according to claim 31, wherein said temporary connection bars fix said plurality of termination pads in position relative to each other.

33. (Withdrawn) The lead frame package according to claim 25, wherein said lead frame substrate further comprises a plurality of leads located around a periphery of the said lead frame substrate.

34. (Withdrawn) The lead frame package according to claim 33, wherein said molding compound fixes said plurality of leads in said molding compound.

35. (Currently amended) A lead frame substrate for mounting onto a circuit board, comprising:

a plurality of leads located about a periphery of the lead frame substrate;

a plurality of connection bars including at least one permanent connection bar and at least one temporary connection bar;

a plurality of semiconductor die pads, each one of said plurality of semiconductor die pads being adapted to receive a semiconductor die;

a plurality of termination pads, each one of said plurality of termination pads being adapted to receive at least one of a passive component and a bonding wire, said plurality of termination pads being linked together and to said plurality of semiconductor die pads by respective ones of said plurality of connection bars; and

a molding compound fixing said plurality of semiconductor die pads, said plurality of termination pads, said plurality of connection bars, and said plurality of leads together, thereby permitting removal of said at least one temporary connection bar.

36. (Withdrawn) The lead frame substrate according to claim 35, wherein only said plurality of semiconductor die pads and said plurality of leads contact the circuit board when the lead frame substrate is mounted on the circuit board.

37. (Currently amended) The lead frame substrate according to claim 35, wherein said plurality of at least one permanent connection bars bar electrically couples at least one of said plurality of semiconductor die pads to at least one of said plurality of terminations pads.

38 (Original) The lead frame substrate according to claim 35, wherein the lead frame substrate comprises a substantially uniform thickness.

39. (Currently amended) The lead frame substrate according to claim 35, wherein said frame plurality of leads, said plurality of connection bars, said plurality of semiconductor die pads, and said plurality of termination pads have a unitary construction from a common piece of conductive material.

40. (Withdrawn) A lead frame package, comprising:

a circuit board having a top surface including electrically conductive and electrically non-conductive portions; and

a lead frame substrate mounted on said top surface of said circuit board, including:

a plurality of leads located about a periphery of said lead frame substrate;

a plurality of connection bars;

a semiconductor die pad being adapted to receive a semiconductor die;

a plurality of termination pads, each one of said plurality of termination pads being adapted to receive a passive component and a bonding wire, said plurality of termination pads being linked together and to said semiconductor die pad by said plurality of connection bars; and

a molding compound fixing said semiconductor die pad, said plurality of termination pads, said plurality of connection bars, and said plurality of leads together.

41. (Withdrawn) The lead frame package according to claim 40, wherein said plurality of leads and said semiconductor die pad are electrically coupled to said conductive portions of said circuit board.

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